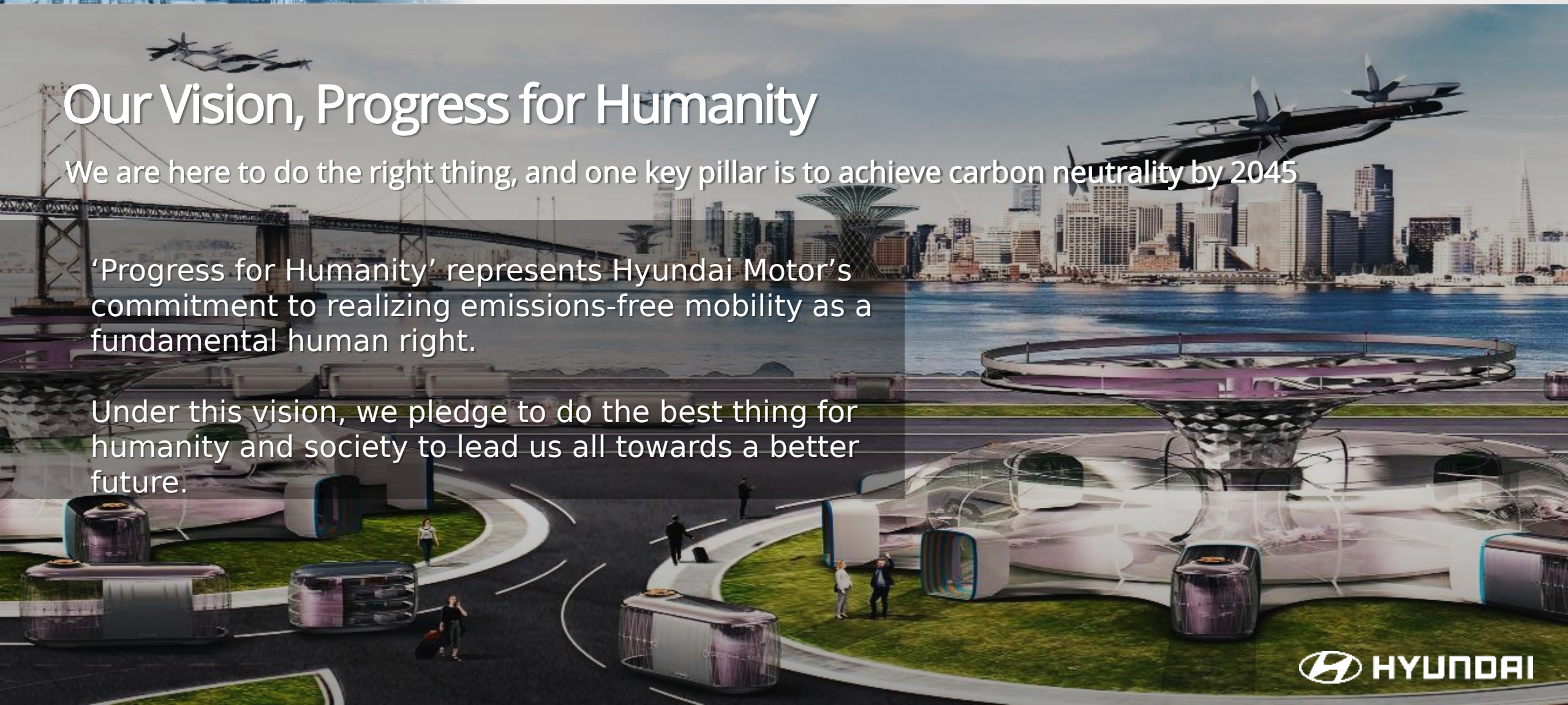
Javier del Val Muñoz.
Hyundai Motor España

Our Vision, Progress for Humanity

We are here to do the right thing, and one key pillar is to achieve carbon neutrality by 2045

‘Progress for Humanity’ represents Hyundai Motor’s commitment to realizing emissions-free mobility as a fundamental human right.

Under this vision, we pledge to do the best thing for humanity and society to lead us all towards a better future.



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Why hydrogen?

Hyundai is a leader of global FCEV market

1998
Initiated Fuel Cell Development

2006
Santa Fe-based FCEV prototype

2013
ix35 Fuel Cell
"The world's 1st mass produced FCEV"

2018
NEXO
"World best-selling FCEV"

2020
Xcient FC Truck
"The world 1st mass produced FC truck"

Elec City FC Bus
"Mass produced FC bus for city transportation"

2022
N Vision 74 rolling-lab
"The Most advanced FCEV"
(High-performance concept)

2023
Universe FCEV
"FC express bus for long-haul"

Xcient FCEV Tractor
"Long-haul tractor optimized for NA"

25 years R&D activities on fuel cell technology with the most diverse line-up of FCEVs

Market Leading Products

Stack Output	95 kW
Motor Output	113 kW
Tank Cap.	6.33 Kg
Drive Range	666 km

- Performance on par with ICE, delivered 20,000+ units

Stack Output	190 kW
Motor Output	350 kW
Tank Cap.	32 Kg
Drive Range	400 km

- Y21~, 46 Units delivered in Switzerland

Stack Output	180 kW
Motor Output	300 kW
Tank Cap.	34 Kg
Drive Range	474 km

- 100+ units deployed in Korea
- Prototype test in Vienna and Munich

THE FAST TRACK TO THE HYDROGEN ECONOMY

EUROPEAN HYDROGEN ENERGY CONFERENCE

EHEC 2024 | AeH2 SPANISH HYDROGEN ASSOCIATION

GASOLINE

NEGATIVE ICE

- Emissions (CO2 UE target)
- Imported Fuel

FUEL CELL

POSTIVE ICE

+ Long range
+ Fast refueling
+ Little affected by the weather
+ Scalable to vehicle size

POSITIVE BEV

+ Zero emissions
+ High energy efficiency
+ Instant torque
+ Quiet operation
+ Local energy source

BATTERY EV

NEGATIVE BEV

- Limited autonomy
- Charging time
- Space in vehicle
- Performance affected by climate

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BEV

- Emisions
- Local & renewable Energy
- Instant Torque
- High energy efficiency
- Refueling time
- Autonomy
- Weight

FCEV

Commercial Vehicles

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Timeline of Hyundai's private FCEV development

1998
Department for fuel cell development established

2000
FCEV based on Santa Fe (Prototype)

2013
World's first mass-produced Tucson ix Fuel Cell released

2017
New FCEV concept FE Fuel Cell Concept released

2018
New FCEV NEXO released

Tucson FCEV

World 1st mass-produced FCEV

Fuel cell system modularization, similar production method to conventional vehicle

2013

Deployed in 18 countries
since first delivery to Copenhagen

2015

Awarded WARD's 10 Best Engines

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World leading driving range.

Battery capacity
1.56 kWh

Electric Motor
120 kW
163 PS

Stack power
95 kW

Max. output
40 kW

Tank capacity
156.6 l

Range
666 km

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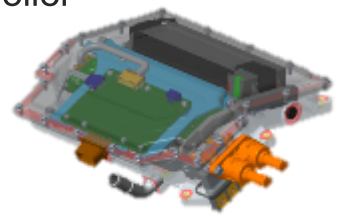
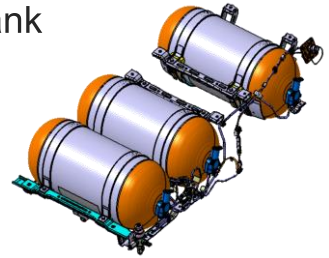
Controller



BOP

Battery System

H2 Tank



Stack

Motor

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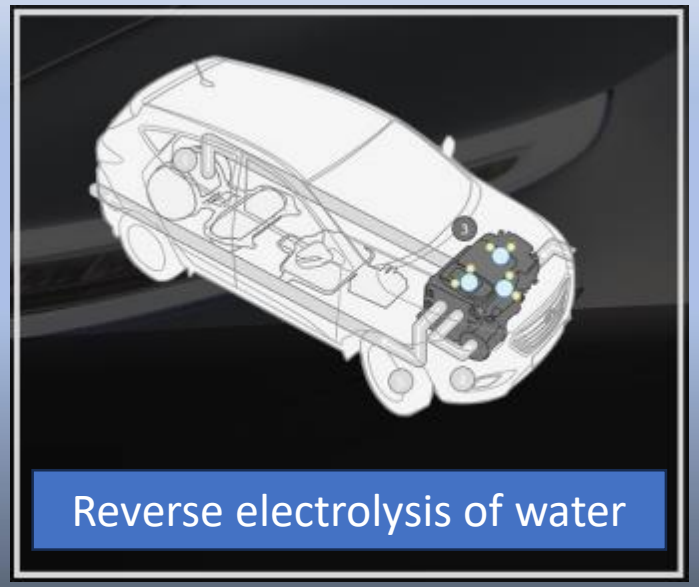
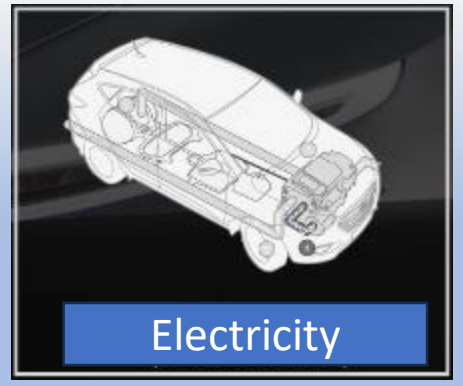
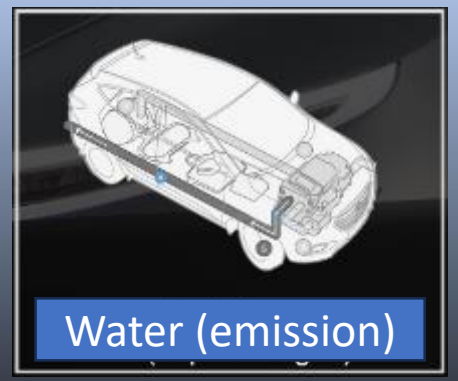
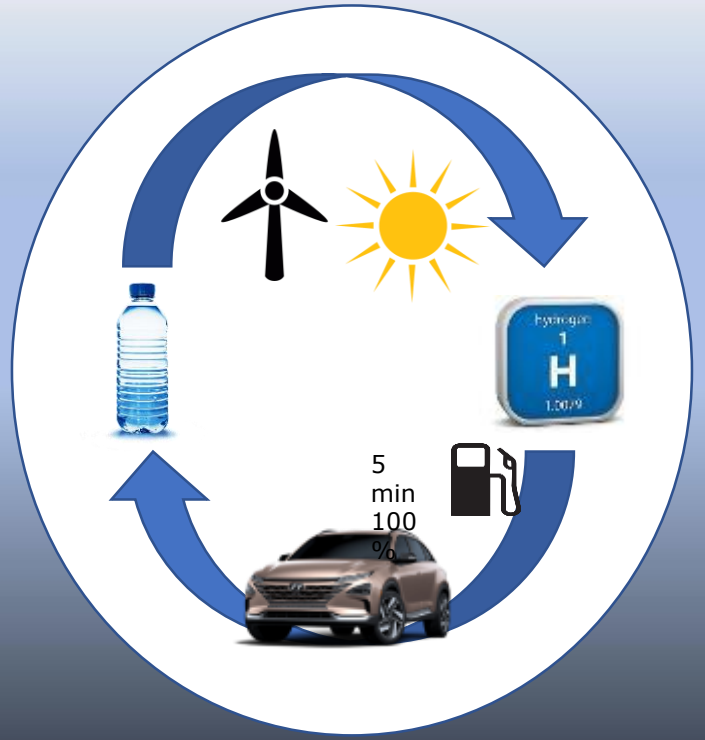
H2 supply


O2 supply


Reverse electrolysis of water

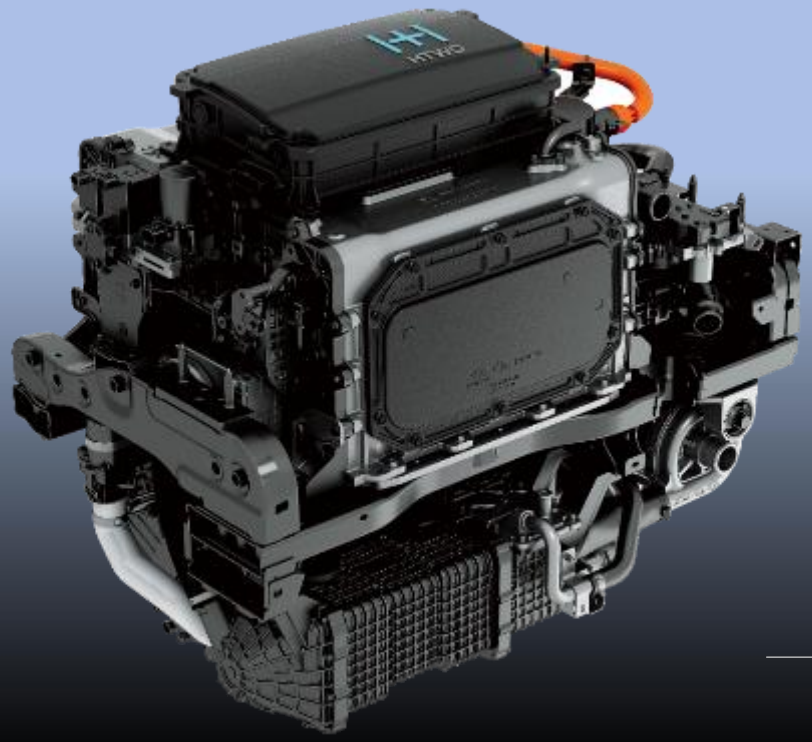

Electricity


Water (emission)


H
5 min
100 %

HTWO Fuel Cell System – Future Applications

Widening the scope of fuel cell system application



Fuel Cell Business – Automotive Sector Customers

Achieving economies of scale by building partnerships with other OEMs

IVECO Group

eDAILY FCEV

Light Commercial Vehicle (van)

E-WAY H2

12m low Floor City Bus

FAUN Enginius

Refuse Truck

Garbage truck for cities

Fuel Cell Business – Non-automotive Sector

Contributing to the expansion of hydrogen society with diversified applications

Infrastructures

Cranes

Hydrogen-powered cranes in ports / railyards

* Diesel cranes are one of the heaviest polluters in ports /railyards

Fuel Cell Tram

Fuel cell system-equipped trams require less infrastructure

Power Generation

Power Generators

Modularized system enables flexible capacity upon demand.

*Currently testing a 1MW-class power generation system in Ulsan, KR

Mobile Power Generator

Mobility allows infrastructure-lacking areas to have power.

* Could be used for motorsports, film production, and other events.

Thank You

"As a first mover in the forthcoming hydrogen economy, we will lead a society that uses hydrogen as its main source of energy."

Javier del Val Muñoz.
Hyundai Motor España

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